

1. (Amended) A particle size distribution analysis apparatus comprising a sample measurement zone defining a sample of particles, a light emitting means for providing a source of light incident upon the sample measurement zone, and at least a first detection means for measuring light levels in the apparatus at particular scattering angles and output a signal to a computation means for calculating said particle size distribution enabling the particle size distribution of particles contained within said sample to be determined, wherein said computation means calculates ~~in use~~, said particle size distribution taking into account reflections by said measurement zone of light that has previously been scattered by said particles.

2. (Amended) An apparatus according to claim 1 wherein there is provided a second detection means and said computation means modifies, in use, measurements taken from said first detection means based upon measurements taken from said second detection means to take in to account reflections.

14. (Amended) A method of improving the accuracy of a particle size distribution calculation performed by illuminating a sample with light from a light emitting means and measuring an amount of light scattered by the sample comprising providing at least a first detection means and calculating the particle size distribution ~~in use~~ taking into account reflections by a measurement zone of light that has previously been scattered by the particles.

15. (Amended) A method according to claim 14 which comprises providing a second detection means and modifying measurements taken from said first detection means by measurements taken from said second detection means.

16. (Amended) A method according to claim 15 in which a measurement taken from said second detection means is modified by measurements taken by said first detection means.

17. (Amended) A method according to claim 15 which comprises compensating a measurement from one of the first or second detection means detecting light scattered having a directional component towards said light emitting means with a measurement from the other of the first or second detection means detecting scattered light having no directional component toward said light emitting means.

18. (Amended) A method according to claim 15 which comprises compensating a measurement from one of the first or second detection means detecting light having no directional component towards said light emitting means with a measurement from the other of the first or second detection means detecting scattered light having a directional component toward said light emitting means.

22. (New) A particle size distribution analysis apparatus comprising a cell for containing a sample of particles, a monochromatic light source for illuminating the sample, first and second photodetectors for measuring light scattered by the particles, a processor for processing measurements of the scattered light such that a reflection, by a surface of the cell, of light that has previously been scattered by said particles are taken into account when calculating the particle size distribution.

23. (New) An apparatus according to claim 2 wherein said angle at which the ~~second~~ detection means is inclined relative to a

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beam of light emitted from said light emitting means is equal to
180° minus the angle at which said first detection means is
inclined relative to the beam of light.

24. (New) An apparatus according to claim 2 wherein said
computation means modifies, in use, measurements taken from said
second detection means based upon measurements taken from said
first detection means to take in to account reflections.

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25. (New) An apparatus according to claim 1 wherein said first
detection means comprises a large angle detector which is
situated substantially in the range 90° to 0° from the axis of a
beam of light emitted from said light emitting means taking the
direction of travel of the light as 0°.

26. (New) An apparatus according to claim 25 wherein said large
angle detector is situated substantially in the range of 70° to
40°.

27. (New) An apparatus according to claim 25 wherein there is
provided a plurality of said large angle detectors.

28. (New) An apparatus according to claim 2 wherein said second
detection means comprises a back scatter detector which is
situated substantially at an obtuse angle from the axis of a beam
of light emitted from said light emitting means taking the
direction of travel of the light as 0°.

29. (New) An apparatus according to claim 28 wherein said obtuse
angle is substantially in the range 90° to 180°.

30. (New) An apparatus according to claim 28 wherein said obtuse

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angle is substantially in the range 110° to 170° .

31. (New) An apparatus according to claim 28 wherein there are
provided a plurality of said back scatter detectors.

32. (New) An apparatus according to claim 2 wherein there are a
plurality of first detection means and the same number of second
detection means wherein said first and said second detection
means are inclined symmetrically relative to said measurement
zone.

33. (New) An apparatus according claim 2 wherein said first and
said second detectors are of substantially the same construction.
